SUBMITTAL

Project

Mount Vernon AHU/CU-6

Date

Monday, November 24, 2014

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Prepared By: Joe Bailey

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AHU/CU-6

Submittal Cover Sheet
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Unit Report For AHUCU-6

Project: Mount Vernon
Prepared By: Joe Bailey

11/24/2014

Outdoor Unit Parameters

Unit Model:.....**25HCD**
Unit Size:.....**5 Tons**
Voltage:.....**208/230-3** V-Ph-Hz

Indoor Unit Parameters

Unit Model:.....**FX4D**
Unit Size:.....**60,000 Btuh**
Cabinet Insulation:**Single-piece cabinet with 1-in. super thick insulation**.....
Voltage:.....**208/230-1-60** V-Ph-Hz
Heating Size:.....**No Heat**

Outdoor Unit Dimensions and Weight

Unit Length:..... **36** in
Unit Width: ..... **40** in
Unit Height: ..... **33** in
Unit Shipping Weight:..... **282** lb

Indoor Unit Dimensions and Weight

Unit Length:..... **22.06** in
Unit Width:..... **25** in
Unit Height: ..... **59** in
Unit Shipping Weight:..... **201** lb

Warranty Information

OTHER RESIDENTIAL APPLICATIONS (Apartments, Rental Properties, etc.)

The warranty period is five (5) years on parts. The warranty is to the original owner only and is not transferable.

OTHER APPLICATIONS

The warranty period is five (5) years on the compressor, and one (1) year on all other parts. The warranty is to the original owner only and is not transferable.

Ordering Information

Part Number	Description	Quantity
Outdoor Unit		
25HCD360A005	25HCD Comfort Series Heat Pump with Puron Refrigerant 5 Tons Cooling	1
	13 SEER @ ARI Conditions	1
	Dense Grille	1
Indoor Unit		
FX4DNF061T00	FX4D Comfort Series Fan Coil with Puron 60000 BTU Cooling	1
	Single-piece cabinet with 1-in. super thick insulation	1
	Armor Coating	1
Accessories		
KFCEH1601315	15 kW, Electric Heater, Non-fused, Stageable, with relays	1

Performance Summary For AHUCU-6

Project: Mount Vernon
Prepared By: Joe Bailey

11/24/2014

System Performance

System: **25HCD/FX4D**
- System Quantity: **1**
- Altitude: ..... **0.0** ft
- Linear Pipe Length: ..... **0.0** ft
- COP @ 47 F: **3.68**
- COP @ 17 F: **2.60**
- SEER @ ARI Conditions: **13.5**
- EER @ ARI Conditions: **11.5**
- HSPF @ ARI Conditions: **7.7**

- Actual Airflow: ..... **1774.0** CFM
- Standard Airflow: ..... **1774.0** CFM
- Total Net Clg Capacity: ..... **59.17** MBH
- Net Sensible Clg Capacity: ..... **42.29** MBH
- Htg HP Capacity: ..... **57.50** MBH
- Htg HP Integrated Capacity: ..... **57.50** MBH
- Heating HP Compressor Power: ..... **4.58** kW
- Total System Power: ..... **5.16** kW

System Parameters

System Parameters

Outdoor Unit Parameters
- Unit Model: **25HCD360A005**
- Unit Size (Nominal): ..... **5 Tons**
- Voltage: ..... **208/230-3** V-Ph-Hz
- Htg Ent Air DB: ..... **70.0** °F
- Htg Lvg Air DB: ..... **100.0** °F
- Clg Ent Air DB Ambient: ..... **95.0** °F
- Htg Ent Air DB Ambient: ..... **47.0** °F

Indoor Unit Parameters
- Unit Model: **FX4DNF061T00**
- Unit Size (Nominal): ..... **60,000 Btuh**
- Voltage: ..... **208/230-1-60** V-Ph-Hz
- Ent Air DB: ..... **80.00** °F
- Ent Air WB: ..... **67.00** °F
- Ent Enthalpy: ..... **31.44** BTU/lb
- Lvg Air DB: ..... **57.93** °F
- Lvg Air WB: ..... **56.42** °F
- Lvg Enthalpy: ..... **24.03** BTU/lb
- Heating Size (Nominal): ..... **No Heat**
- Indoor Unit External Static: ..... **0.50** in wg

Electrical Data

Electrical Data

Outdoor Electrical Data
- Unit Voltage: ..... **208/230-3** V-Ph-Hz
- Fan Motor FLA: ..... **1.20** Amps
- MCA: ..... **21.1** Amps
- Max Fuse: ..... **30** Amps
- Operating Range Min: ..... **197** V
- Operating Range Max: ..... **253** V
- Compressor RLA: ..... **15.9** Amps
- Compressor LRA: ..... **110.0** Amps

Indoor Electrical Data:

(For units with no factory installed electric heaters)
- Unit Voltage: ..... **208/230-1-60** V-Ph-Hz
- Unit FLA: ..... **6.0** Amps
- Unit MCA: ..... **7.5** Amps
- Unit MOCP: ..... **15.0** Amps
- Unit Min Wire Size: **14.0**
- Motor HP: ..... **3/4** HP

Notice: Indoor Elect. data is for 208/230-1-60 voltage

Accessory Electric Heater Data

(Single point power for unit WITH electric heaters)
- EH Part Number: **KFCEH1601315**
- Electric Heater kW: ..... **15.0** kW

For 2 wire operation (single circuit):
- Heater Amps: ..... **31.3/34.6** Amps
- Heater + Motor MCA: ..... **47.7/51.8** Amps
- Heater + Motor MOCP: ..... **50/60** Amps
- Accessory Voltage: ..... **208/230-3-60** V-Ph-Hz

Acoustic Summary For AHUCU-6

Project: Mount Vernon 11/24/2014
Prepared By: Joe Bailey

Outdoor Unit Parameters:

Unit Model: **25HCD**
Unit Size: ..... **5 Tons**
Variations: ..... **Dense Grille**

Octave Band Center Frequency, Hz	63	125	250	500	1k	2k	4k	8k	dBA
Sound Power,dB	0.0	55.0	63.0	67.5	71.5	68.0	64.0	60.5	
A-Weighted Sound Power, dBA									77.0

Indoor Unit Parameters:

Unit Model: **FX4D**
Unit Size: **60,000 Btuh**
Cabinet Insulation: **Single-piece cabinet with 1-in. super thick insulation**

Octave Band Center Frequency, Hz	63	125	250	500	1k	2k	4k	8k	dBA
Sound Power,dB	70.0	66.0	62.0	59.0	57.0	55.0	51.0	0.0	
A-Weighted Sound Power, dBA									0.0

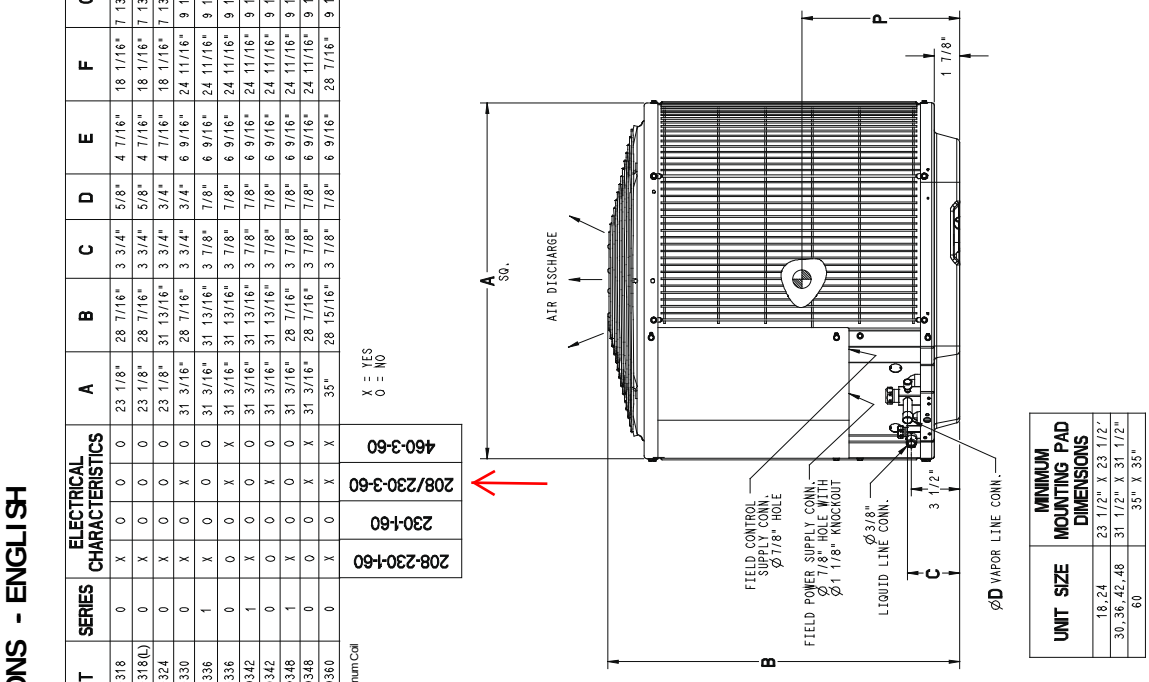
DIMENSIONS - ENGLISH

UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A	B	C	D	E	F	G	K	L	M	N	P	OPERATING WEIGHT (lbs)	SHIPPING WEIGHT (lbs)	SHIPPING DIMENSIONS (L x W x H)
25HCD318	0	X	0	0	0	23 1/8"	28 7/16"	3 3/4"	5/8"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	11 1/2"	10 1/2"	11 1/2"	119	137	24 1/8" X 24 1/8" X 30 5/8"
25HCD318(L)	0	X	0	0	0	23 1/8"	28 7/16"	3 3/4"	5/8"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	11 1/2"	10 1/2"	11"	119.5	141.5	25 1/4" X 25 1/4" X 33 1/4"
25HCD324	0	X	0	0	0	23 1/8"	31 13/16"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	11 1/2"	10 1/2"	12 1/2"	124	142	24 1/8" X 24 1/8" X 34"
25HCD330	0	X	0	X	0	31 3/16"	28 7/16"	3 3/4"	3/4"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	15"	15"	11 1/2"	149	170	32 3/16" X 32 3/16" X 30 5/8"
25HCD336	1	X	0	0	0	31 3/16"	31 13/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	15"	15"	12 1/2"	169	189	32 3/16" X 32 3/16" X 34"
25HCD336	0	0	0	X	X	31 3/16"	31 13/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	15"	15"	12 1/2"	169	189	32 3/16" X 32 3/16" X 34"
25HCD342	1	X	0	0	0	31 3/16"	31 13/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	15"	15"	12 1/2"	180	200	32 3/16" X 32 3/16" X 34"
25HCD342	0	0	0	X	0	31 3/16"	31 13/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	15"	15"	12 1/2"	180	200	32 3/16" X 32 3/16" X 34"
25HCD348	1	X	0	0	0	31 3/16"	28 7/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	15"	15"	11 1/2"	208	228	32 3/16" X 32 3/16" X 30 5/8"
25HCD348	0	0	0	X	X	31 3/16"	28 7/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	15"	15"	11 1/2"	208	228	32 3/16" X 32 3/16" X 30 5/8"
25HCD360	0	X	0	X	X	35"	28 15/16"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	17"	16"	12"	250	282	36 1/8" X 39 5/16" X 32 9/16"

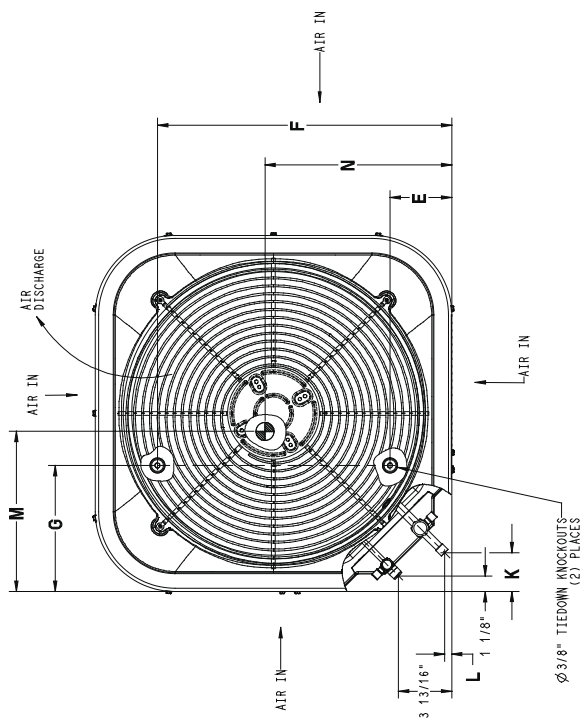
(U) = Aluminum Coil

X = YES
O = NO

ELECTRICAL CHARACTERISTICS
208-230-1-60
230-1-60
208/230-3-60
460-3-60



UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
18,24	23 1/2" X 23 1/2"
30,36,42,48	31 1/2" X 31 1/2"
60	35" X 35"



25HCD3

DIMENSIONS (cont.)

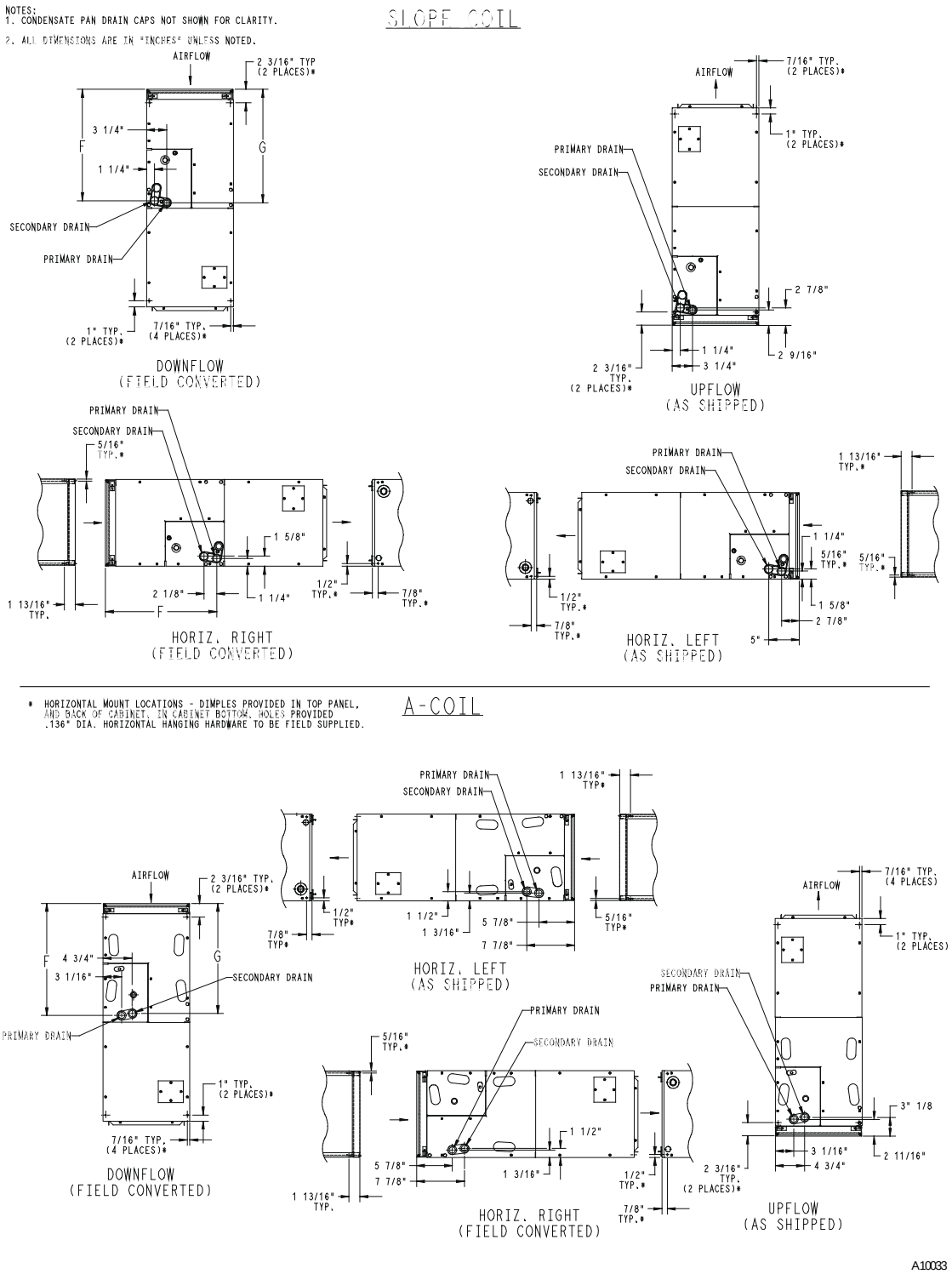


Fig. 2 -- FX4D -- English

FX4D

DIMENSIONS

UNIT	A	B	C	D	E	F	G	H	J	COIL CONFIGURATION SLOPE	COIL CONFIGURATION "A"	SHIPPING WT (LBS) NON TIN-COATED	SHIPPING WT (LBS) TIN-COATED
FX4DNF019	49 5/8"	17 5/8"	15 3/4"	15 5/8"	15 3/8"	23 1/8"	23 5/8"	–	17"	X	–	122	122
FX4DNF025	49 5/8"	17 5/8"	15 3/4"	15 5/8"	15 3/8"	23 1/8"	23 5/8"	–	17"	X	–	122	122
FX4DNF031	53 7/16"	21 1/8"	19 1/4"	19 1/8"	19 3/16"	26 15/16"	27 1/2"	–	19"	X	–	146	146
FX4DNF037	49 5/8"	21 1/8"	19 1/4"	19 1/8"	15 11/16"	23 7/16"	23 1/8"	–	–	–	X	157	157
FX4DNF043	49 5/8"	21 1/8"	19 1/4"	19 1/8"	15 11/16"	23 7/16"	23 1/8"	–	–	–	X	157	157
FX4DNF049	53 7/16"	24 11/16"	22 3/4"	22 11/16"	19 1/2"	27 1/4"	26 15/16"	–	–	–	X	185	185
FX4DNF061	59 3/16"	24 11/16"	22 3/4"	22 11/16"	25 1/4"	32 15/16"	32 5/8"	–	–	–	X	201	201

NOTE:

1. SERIES DESIGNATION IS THE 14TH POSITION OF UNIT PRODUCT NUMBER
2. ALL DIMENSIONS ARE IN "INCHES" UNLESS NOTED.

NOTE: ALLOW 21" FROM FRONT FOR SERVICE

FX4D

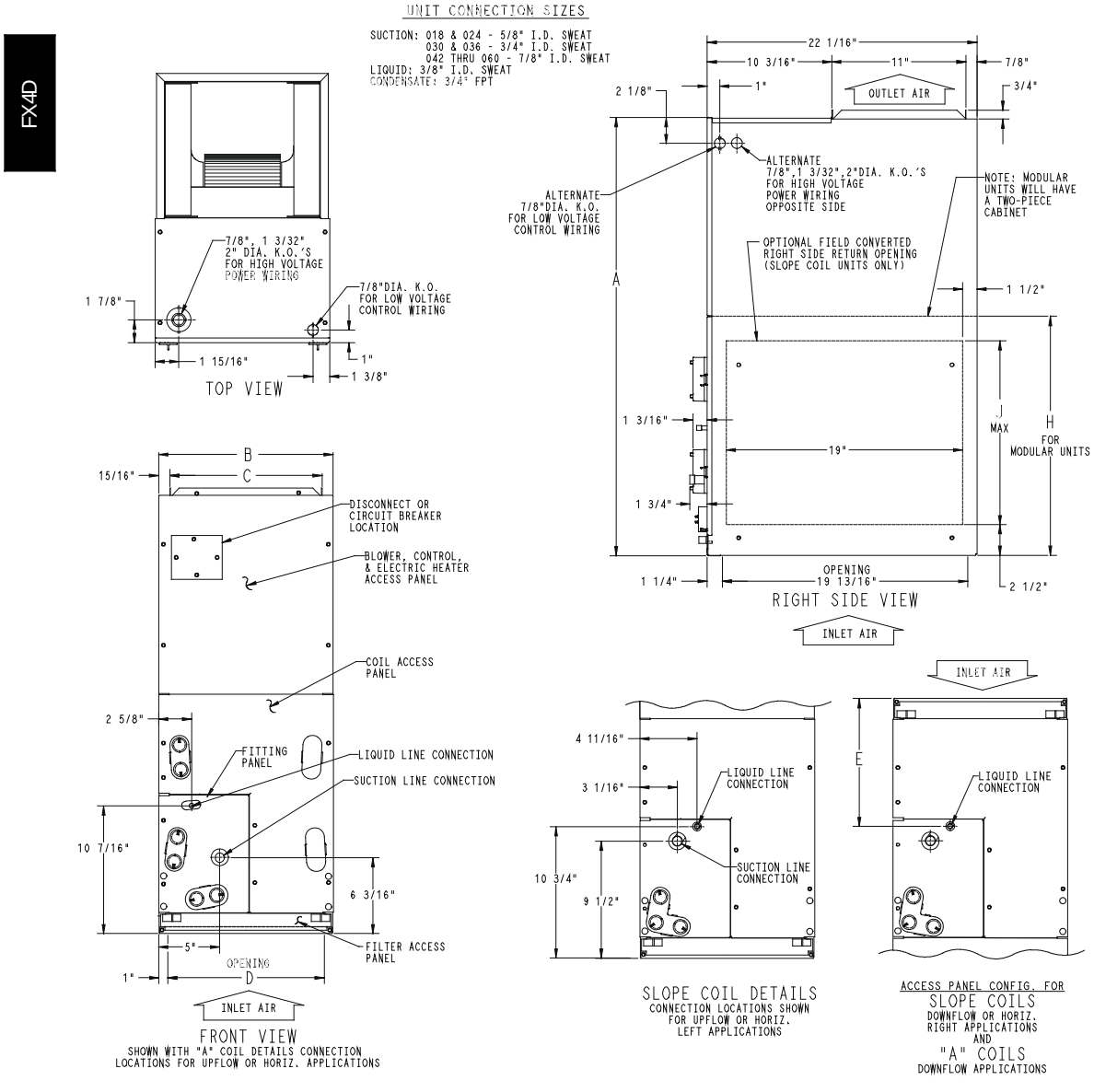


Fig. 1 -- FX4D -- English

GUIDE SPECIFICATIONS
GENERAL

AIR--COOLED, SPLIT--SYSTEM HEAT PUMP
25HCD3
1--1/2 TO 5 NOMINAL TONS

System Description
Outdoor--mounted, air--cooled, split--system heat pump unit suitable for ground or rooftop installation. Unit consists of a hermetic compressor, an air--cooled coil, propeller--type condenser fan, and a control box. Unit will discharge supply air upward as shown on contract drawings. Unit will be used in a refrigeration circuit to match up to a packaged fan coil or coil unit.

Quality Assurance
- Unit will be rated in accordance with the latest edition of AHRI Standard 240.
- Unit will be certified for capacity and efficiency, and listed in the latest AHRI directory.
- Unit construction will comply with latest edition of ANSI/ ASHRAE and with NEC.
- Unit will be constructed in accordance with UL standards and will carry the UL label of approval. Unit will have C--UL approval.
- Unit cabinet will be capable of withstanding Federal Test Method Standard No. 141 (Method 6061) 500--hr salt spray test.
- Air--cooled condenser coils are pressure tested and the outdoor unit is leak tested.
- Unit constructed in ISO9001 approved facility.

Delivery, Storage, and Handling
- Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

Warranty (for inclusion by specifying engineer)
- U.S. and Canada only.

PRODUCTS
Equipment
- Factory assembled, single piece, air--cooled heat pump unit. Contained within the unit enclosure is all factory wiring, piping, controls, compressor, refrigerant charge Puronr (R--410A), and special features required prior to field start--up.

Unit Cabinet
- Unit cabinet will be constructed of galvanized steel, bonderized, and coated with a powder coat paint.
- Available with dense grille only.

Fans
- Condenser fan will be direct--drive propeller type, discharging air upward.
- Condenser fan motors will be totally enclosed, 1—phase type with class B insulation and permanently lubricated bearings.
- Shafts will be corrosion resistant.
- Fan blades will be statically and dynamically balanced.
- Condenser fan openings will be equipped with steel wire safety guards.

Compressor
- Compressor will be hermetically sealed.
- Compressor will be mounted on rubber vibration isolators.

Condenser Coil
- Condenser coil will be air cooled.
- Coil will be constructed of aluminum fins mechanically bonded to copper tubes which are then cleaned, dehydrated, and sealed.

Refrigeration Components
- Refrigeration circuit components will include liquid—line shutoff valve with sweat connections, vapor--line shutoff valve with sweat connections, system charge of Puronr (R--410A) refrigerant, POE compressor oil, accumulator, and reversing valve.

Operating Characteristics

- The capacity of the unit will meet or exceed _____ Btuh at a suction temperature of _____ _F/_C. The power consumption at full load will not exceed _____ kW.
- Combination of the unit and the evaporator or fan coil unit will have a total net cooling capacity of _____ Btuh or greater at conditions of _____ CFM entering air temperature at the evaporator at _____ _F wet bulb and _____ _F/_C dry bulb, and air entering the unit at _____ _F/_C.
- The system will have a SEER of _____ Btuh/watt or greater at DOE conditions.

Electrical Requirements

- Nominal unit electrical characteristics will be _____ v, single phase, 60 hz. The unit will be capable of satisfactory operation within voltage limits of _____ v to _____ v.
- Nominal unit electrical characteristics will be _____ v, three phase, 60 hz. The unit will be capable of satisfactory operation within voltage limits of _____ v to _____ v.
- Unit electrical power will be single point connection.
- Control circuit will be 24v.

Special Features

- Refer to section of this literature identifying accessories and descriptions for specific features and available enhancements.

SYSTEM DESIGN SUMMARY

1. Intended for outdoor installation with free air inlet and outlet. Outdoor fan external static pressure available is less than .01--in. wc.
2. Minimum outdoor operating air temperature without low--ambient operation accessory is 55_F (12.8_C).
3. Maximum outdoor operating air temperature for cooling mode is 125_F (51.7_C).
4. Minimum outdoor operating air temperature for heating mode is –30_F (–34.4_C).
5. Maximum outdoor operating air temperature for heating mode is 66_F (18.9_C).
6. For reliable operation, unit should be level in all horizontal planes.
7. For interconnecting refrigerant tube lengths greater than 80 ft (23.4 m) and/or elevation differences between indoor and outdoor units greater than 20 ft (6.1 m), consult Residential Piping and Longline Guideline and Service Manual available from equipment distributor.
8. If any refrigerant tubing is buried, provide a 6 in. (152.4 mm) vertical rise to the valve connections at the unit. Refrigerant tubing lengths up to 36 in. (914.4 mm) may be buried without further consideration. Do not bury refrigerant lines longer than 36 in. (914.4 mm).
9. Use only copper wire for electric connection at unit. Aluminum and clad aluminum are not acceptable for the type of connector provided.
10. Do not apply capillary tube indoor coils to these units.
11. Factory--supplied filter drier must be installed.

Guide Specifications – Fan Coils – Fixed Speed

Guide Specifications for _____.
(See the most recent edition of publication _____for data for the specific model to be specified).

Furnish and Install _____ direct expansion fan coil(s) equipped with cooling control kit and _____(with) _____(without) electric heater in the location and manner shown on the plan. Unit shall operate properly in _____(vertical upflow) _____(horizontal right) _____(horizontal left) _____(vertical downflow) position and is to be installed with ductwork. Total cooling capacity shall be _____ Btuh or greater, and sensible heat capacity shall be _____Btuh or greater, at conditions of _____ cfm, _____degree F wb _____degree F db air entering unit, and a coil refrigerant temperature of _____ degree F.

Efficiency shall be _____ when matched with outdoor unit _____ (per ARI ratings certification).

Unit enclosure shall be insulated with a 1 inch foil faced, high density, R4.2 insulation, and be constructed of prepainted galvanized steel. Large front service access panels shall provide easy access to all components. Unit shall be _____ (factory), _____ (field) equipped with reusable type filters. Filter shall be _____inches (X) _____ inches.

Fan shall be forward curved with double inlet, mounted on motor shaft, dynamically and statically balanced. The fan shall deliver _____ cfm with _____ in. wg external static pressure operating at _____ hp. Fan-motor assembly shall be removable for service. Blower motor shall be induction type, of _____ hp.

Cooling coil shall have a face area of not less than _____sq. ft. and be constructed with brazed copper tubing with aluminum lanced fins. Coil shall have TXV (thermal expansion valve); refrigerant line fittings which permit braze connections. Condensate pans

shall be equipped with primary and auxiliary drain connections with brass inserts, sloping, with minimal standing water retention. Refrigerant to be used will be _____(R-22) _____(R-410a).

Blower controls include control board with time delay relay, a 5 amp replaceable automotive-type circuit protection fuse, and motor speed tap selection terminal (SPT).

Electric heater _____shall be _____(factory) _____(field) installed wired for_____(single)_____(multiple) supply circuit and _____(single)_____(3-phase) operation on fixed speed fan coil units. Standard heater control wiring shall be single stage with optional multiple staging capability. All heaters shall be equipped with thermal overload device, current overload for heater above 10 kw.

Cooling control system includes 40-VA control circuit (24 v) transformer, with replaceable 5 amp blade-type auto fuse. Low voltage connections shall be point-to-point "wire" connections.

Maximum dimensions: length _____ inches; width _____inches; height _____ inches.

Electrical requirements: _____ volts, _____(single phase) _____(three phase) , frequency _____(60) _____(50) hertz.

25HCD3
Comfort™ 13 Heat Pump
with Puron® Refrigerant
1–1/2 to 5 Nominal Tons

Carrier
turn to the experts

Product Data

Puron
the environmentally sound refrigerant

Comfort SERIES

Carrier heat pumps with Puron® refrigerant provide a collection of features unmatched by any other family of equipment. The 25HCD has been designed utilizing Carrier's Puron refrigerant. The environmentally sound refrigerant allows consumers to make a responsible decision in the protection of the earth's ozone layer.

NOTE: Ratings contained in this document are subject to change at any time. Always refer to the AHRI directory (www.ahridirectory.org) for the most up-to-date ratings information.

INDUSTRY LEADING FEATURES / BENEFITS

Efficiency

- 13.0 - 14.5 SEER/ 11.0 - 12.2 EER/ 7.7 - 8.5 HSPF
- Microtube Technology™ refrigeration system
- Indoor air quality accessories available

Sound

- Sound level as low as 69 dBA
- Sound levels as low as 69 dBA with accessory sound blanket

Comfort

- System supports Edge® Thermidistat™ or standard thermostat controls

Reliability

- Puron® refrigerant - environmentally sound, won't deplete the ozone layer and low lifetime service cost.
- Scroll compressor
- Internal pressure relief valve
- Internal thermal overload
- High pressure switch
- Loss of charge switch
- Filter drier
- Balanced refrigeration system for maximum reliability

Durability

WeatherArmor™ protection package:

- Solid, durable sheet metal construction
- Dense wire coil guard
- Baked-on powder paint

Applications

- Long-line - up to 250 feet (76.20 m) total equivalent length, up to 200 feet (60.96 m) condenser above evaporator, or up to 80 ft. (24.38 m) evaporator above condenser (See Longline Guide for more information.)
- Low ambient (down to -20°F/-28.9°C) with accessory kit

FX4D
Comfort™ Series Fan Coil
Sizes 019 thru 061

Carrier
turn to the experts

Product Data

A10009

AIR HANDLER TECHNOLOGY AT ITS FINEST

The FX4D fan coils combine the proven technology of Carrier fan coil units with Puron®, the environmentally sound refrigerant. These fan coils are loaded with popular features. Factory-installed, refrigerant-specific thermostatic expansion valves (TXV) are standard with these fan coil designs. The designs feature contoured condensate pans with rugged, drain connections, ensuring that little water is left in the unit at the end of the cooling duty cycle. The lack of standing condensate and corrosion free pans improves IAQ and product life, features homeowners appreciate.

Standard features include grooved copper tubing and louvered aluminum fins. The large face areas of the refrigerant coils provide superior efficiency for high SEER and HSPF performance. Coil circuiting has also been updated to make the most of all Carrier heat pumps and air conditioners. Also units come with solid state fan controls, 1-in (25mm) thick insulation with R-value of 4.2, multi-speed motors, and fully-wettable coils. Units can accommodate factory- and/or field-installed heaters from 3 to 30 kW.

It also should be noted that the unique cabinet design of these fan coils meet new stringent regulations for cabinet air leakage - a requirement of 2% cabinet leakage rate when tested at 1.0 inches of static pressure.

The FX4D fan coil is the Puron® refrigeration design loaded with popular features. It comes in a pre-painted (taupe metallic) galvanized steel casing and is shipped with a cleanable, permanent framed filter, and a factory-supplied power plug. ArmorCoat™ provides a tin plating of the indoor coil's copper hairpins. This creates a barrier between the corrosion-causing elements and the coil. These fan coils utilize the latest in electronic commutation motor (ECM) technology through the use of high efficiency, X13, blower motors.